Michels, Louise

From: Frank Tiefert [fxtiefert@ati-ae.com]
Sent: Friday, October 22, 2010 11:47 AM
To: Michels, Louise
Cc: Frank Loffredo
Subject: Comments on Proposed Rules

Attachments: Letter to IEMA.pdf

Letter to EMA.pdf (232 KB

Ms. Michels:

Please see the attached file containing a letter with comments on Proposed Rules Regarding Licensing of Radioactive Material, submitted in accordance with the notices of public hearing on October 27, 2010. A paper copy of this letter is being mailed to your office.

Thank you,

Frank Tiefert

Frank Tiefert, P.E.
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October 22, 2010

Ms. Louise Michels
Staff Attorney
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, Illinois 62704

Subject: Written comments for Public Hearing on October 27, 2010
Proposed Rules regarding Licensing of Radioactive Material
Code Citation: 32 Ill. Adm. Code 330.40
Impact on the Village of Lake Villa

Dear Ms. Michels:

Applied Technologies is writing on behalf of the Village of Lake Villa, to express the Village's concern regarding the proposed changes to the above referenced code.

The Village of Lake Villa is located in northwest Lake County. The Village was incorporated in 1901, and has steadily grown to its present estimated population of 9,358. The Village owns and operates a municipal water supply system for the benefit of its citizens. The water source is a system of seven shallow wells and three deep wells. The Village presently draws about one third of its water from the deep wells, and the remaining two thirds from the shallow wells. Present average water demand is about 750,000 gallons per day.

The water from the deep wells contains naturally occurring radium. Drinking water standards are achieved in the Village water system by blending water from the deep wells with water from the shallow wells. Water treatment includes the addition of chlorine for disinfection, polyphosphates as a corrosion inhibitor, and fluoride as a dental cavity inhibitor. There is no existing treatment system in Lake Villa's municipal water system for radium control.

The Village also owns and operates a wastewater (sewage) collection system. Under agreements with Lake County and with the Fox Lake Northwest Regional Water Reclamation Facility, wastewater from the Village is conveyed to the regional facility for treatment and return to the environment. In addition to Lake Villa, the regional facility services the communities of Fox Lake, Hainesville, Round Lake, Round Lake Heights, Round Lake Park, Round Lake Beach, Volo, and unincorporated portions of northwest Lake County. Biosolids (sludge) from the facility are applied to farmlands as a soil amendment.

Essentially all of the naturally occurring radium in the water from the deep wells remains in the water and is carried in the wastewater to the regional treatment facility. The proposed rules will have significant impacts on the Fox Lake NWRWRF biosolids land application program. The Village of Lake Villa has no control over the Fox Lake NWRWRF biosolids program. It is likely that the Fox Lake NWRWRF will require Lake Villa and the other communities to institute source controls to reduce radium in the wastewater system, so that it can comply with the proposed radium regulations. The proposed rules will impact the Village of Lake Villa through the wastewater system, and may ultimately require that the Village remove radium from its deep well water supply.

A preliminary analysis shows that the Village could achieve radium control using a proprietary system manufactured and serviced by Water Remediation Technology, LLC. In the WRT system, water passes through treatment columns where Radium 226 and Radium 228 are removed and gross alpha is reduced. After the media in the columns is loaded with radium, the media is removed and replaced by WRT. The spent media is disposed in a licensed facility, again by WRT. With this system, all of the radium is handled by a single outside company who has all of the appropriate training and licensing.

Preliminary costs have been prepared for installing the WRT system in the Village of Lake Villa. The system would be composed of three separate installations, one at each of the deep well sites. The capital costs to install the system are estimated to be $3.2 million. The annual operating cost is estimated to be $200,000. Total annual costs for the WRT system, including financing of the capital costs at 6% and the annual operating costs, is estimated to be $430,000. Water rates will need to be raised approximately 52% to provide the necessary revenue.

The Village has not been subject to regulation by the IEMA in the past. As a practical matter, these rules constitute a new set of regulations upon the Village. The very substantial new costs which the proposed regulations will impose on the Village will require a very substantial increase in water rates, in a time period when overall economic conditions make it very difficult to raise rates. The Village respectfully requests that the

proposed rules not be implemented unless grants or other funding sources for compliance with such rules are provided by IEMA or other agencies, and if such proposed rules are implemented, that they include a substantial length of time to achieve compliance so that Lake Villa can consider and develop appropriate alternatives for modifications to its water supply system, which the proposed rules will require.

Sincerely,

Applied Technologies, Inc.

Frank Tiefert, P.E.
Vice President

Cc: Frank Loffredo, Mayor, Village of Lake Villa

Manhard
CONSULTING LTD

Civil Engineering
Surveying
Water Resources Management
Water & Wastewater Engineering
Supply Chain Logistics
Construction Management
Environmental Sciences
Landscape Architecture
Land Planning

October 25, 2010

The Illinois Emergency Management Agency
Radium Public Hearing
Illinois Valley Community College
Oglesby, Ilinois

To Whom It May Concern:

The Village of Volo has a registered population of 2,100 residents and is located in the far northwestern section of Lake County. The Village owns and operates two (2) separate public water supplies both of which have ion exchange treatment for radium removal.

Currently the north water system, which was constructed in 1998, pumps and treats nearly 100,000 gallons per day providing excellent quality water to the residents. The water system supplies service to large and small commercial properties as well as a backup service supply to the Village of Fox Lake for fire suppression on the west side of Route 12/59. Waste stream backwash from the regeneration cycle of the ion exchange units is pumped to a gravity flow sewer line near the wellhouse. The Northwest Regional Wastewater Reclamation Facility in Fox Lake ultimately treats the waste from the ion exchange and therein lies the problem. Radium discharge levels are set by the NWRWRF at the water quality standard of 5 pCi/L. With that said each discharge into the sanitary system ultimately exceeds the water quality standard discharge limits. Consequently, the Village of Volo will continuously receive penalties and monetary fines for not meeting the local limits. The economic hardship to the Village because of these fines will result in raising water rates and seeking other avenues of treatment for a water system that cost millions of public dollars to build.

The south water system, which was constructed in 2004, pumps and treats approximately 300,000 gallons per day. Water quality is excellent and meets all the rules and regulations of the State of Illinois. The water system supplies service to one major user and a series of small to moderate commercial buildings, along with the residential development. The NWRWRF wastewater treatment facility has not allowed waste stream discharge from the south water plant ion exchange units and therefore no wastewater discharge permit is issued to the Village of Volo south water system. The Village of Volo currently hauls the waste by truck to sites outside of the sewer district at costs that continue to increase on a regular basis. At least a dozen regenerations are required per month to adequately operate the ion exchange system, which means 13-15 truckloads of waste stream water is hauled from the site. The cost of hauling, road wear, insurance and other issues can only mean rate increases for the residents to make this system function within the current discharge limits.

Essentially any rules changes would significantly impact the NWRWRF sludge disposal and land application program currently in use, forcing the Village of Volo to seek alternative treatment options at substantial costs. Once again it is the residents who will bear the burden of these rules changes as the Village and other communities move toward compliance. The Village of Volo respectfully requests that the proposed rules changes not be implemented.

Costs for the current operation and maintenance along with projected cost options for removal of regeneration waste is attached. Thank you for your time and consideration in this matter.

Village of Volo
Manhard Consulting, Ltd.

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900 Woodlands Parkway • Vernon Hills, Illinois 60061
tel: (847) 634-5550 • fax: (847) 634-0095 • www.manhard.com
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VOLO NORTH WATER SYSTEM

OPTIONS FOR TREATMENT OF REGENERATION WASTE

- Continue paying fines and penalties for wastewater discharge permit exceedances.

- Hauling regeneration waste off site

	Monthly fee @ 15% cap.	$2,880
	Yearly fee @ 100% cap.	$207,360
Road maintenance costs for trucking yearly		$2,000
Capital improvement cost (storage tank expansion)		$100,000

(This option is only viable with treatment plant availability)

- Treatment of regeneration waste

Capital outlay for treatment building expansion, Equipment cost, engineering and construction	$1,800,000
Cost of continuous treatment operation per 1000 gal	$1.75

VOLO SOUTH WATER SYSTEM

OPTIONS FOR TREATMENT OF REGENERATION WASTE

* Currently the Village of Volo is not permitted to discharge into the local sanitary system, consequently the regeneration waste is hauled off site.

Yearly fee @ 33% cap.	$62,000
Yearly fee @ 100% cap.	$186,000

* The Capital Cost of additional waste storage capacity has already been incurred by the Village of Volo. Capital Improvement Cost $100,000

* Treatment of regeneration waste

Capital outlay for treatment building expansion, Equipment cast, engineering and construction	$1,800,000
Cost of continuous treatment operation per 1000 gal	$1.75

Michels, Louise

From: Santos, Juanita [Juanita.Santos@dbr.com]
Sent: Monday, October 25, 2010 3:34 PM
To: Michels, Louise
Subject: City of Joliet - Oct. 27, 2010 Public Hearing
Attachments: Clear Day Bkgrd.JPG; L.Michels.pdf

Ms. Michels, on behalf of Yesenia Villasenor-Rodriguez I am forwarding to you this letter along with the attachments. You will also receive a copy via first class mail. Should you have any problems with this attachment, please contact me.

Thank you,
Juanita Santos
Legal Assistant to
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Yesenia Villasenor-Rodriguez
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WISCONSIN

October 25, 2010

VIA E-MAIL AND FIRST CLASS MAIL

Louise Michels
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704

Re: In re 32 Ill. Adm. Code 330.40 Rulemaking
IEMA October 27, 2010 Public Hearing

Dear Ms. Michels:

On behalf of our client, the City of Joliet, we are submitting this correspondence to the Illinois Emergency Management Agency regarding the upcoming public hearing on October 27, 2010 at the Illinois Valley Community College in Oglesby, Illinois. The purpose of this correspondence is two-fold – (1) Joliet would like to provide IEMA with comments and/or suggestions with respect to the upcoming public hearing; and (2) Joliet is providing pre-filed questions, so that IEMA can review prior to the October 27, 2010 hearing and respond thereto.

First, Joliet is appreciative that IEMA will be holding the October 27th hearing at a location that is closer to the northern Illinois communities that are affected by the proposed rulemaking. We are hopeful that this will allow more communities to attend and partake at the public hearing.

Joliet has requested that Doctor Kenneth Mossman attend the October 27, 2010 public hearing since Joliet has recently provided information prepared by Dr. Mossman to the Joint Committee on Administrative Rules and IEMA. Because Dr. Mossman will be travelling from Arizona to attend the hearing in Oglesby, Illinois we are kindly requesting that IEMA make a few accommodations to ensure his return flight schedule. Joliet requests that IEMA allow Dr. Mossman to provide his testimony immediately following our attorney's testimony and that he be allowed extra time to speak (if needed). While there is no specific time designation, we anticipate that Dr. Mossman may need about 20 minutes for his testimony and any additional time that IEMA may request for questions, if any. Because Dr. Mossman will need to return to Arizona early evening on the date of the hearing, we would also request that our attorney and Dr. Mossman be the first speakers at the hearing in order to accommodate his return travel schedule.

Joliet would also like to offer its comments with respect to the format of the public hearing. Specifically, Joliet suggests that IEMA consider conducting this public hearing in a manner that is more particular and conducive to a stakeholders meeting where there is more dialogue between the stakeholders and IEMA, instead of the more traditional public hearings that IEMA has held in this pending rulemaking (which have not afforded an opportunity for meaningful back and forth discussion/dialogue between IEMA and the participating stakeholders). For example, during the past hearings, stakeholders were unable to receive responses/questions in connection with its respective comments. Rather, IEMA allowed communities to speak and it wasn't until after the record had closed, and IEMA filed its comments with JCAR, that a stakeholder received a response to its comments. Many communities have expressed disappointment with the past process because they were unable to respond or ask questions to IEMA.

Unfortunately, without the opportunity to engage in a meaningful dialogue, there are likely unintended consequences that can have a negative impact on all parties involved. Accordingly, it is the back and forth dialogue as is customary in "stakeholders meetings" that allows IEMA, the regulated community, and any other affected parties to develop a meaningful regulation or policy that is consistent with the real world circumstances faced by the regulated communities while also taking into account the necessary public health, safety, and/or environmental concerns that should be incorporated into any proposed rulemaking and/or policy promulgation.

Based on the public hearing notice, it appears that IEMA intends to close the public record by close of business on the date of the hearing. Joliet requests that IEMA reconsider this decision, and not close the public record at the end of the hearing, because this would be in the best interests of IEMA and the regulated community. In particular, Joliet has concluded that there are two major concerns (in addition to what was discussed above) regarding the promulgation of this rulemaking which necessitates that IEMA reconsider closing the public record until a later time:

(1) There are many communities that are in the infancy fact-gathering stages with respect to how this rulemaking may or may not impact the community. Therefore, the information that is sought by IEMA as provided in its public notice, will not be available before the proposed public record closing date. Joliet is attempting to contact communities that it has been in contact with to participate at the public hearing so that all stakeholders will have the opportunity to present their views. Furthermore, the sampling data as requested by IEMA is not available because this information takes approximately 4-6 weeks, and communities were only given approximately two and half weeks notice of the public hearing and the specific information IEMA included in its notice. Based on the above, communities have elected not to perform additional sampling for this meeting.

If IEMA proceeds with closing the record at the end of the October 27, 2010 meeting, many communities may not be able to provide its respective comments, alternatives, cost data, and/or other relevant information to IEMA; and

(2) Joliet's consultants conducted a review of the responses that IEMA filed with JCAR concerning its testimony. Based on their reviews, it appears that IEMA's responses, in particular those based on the technical considerations, were incorrect and/or misconstrued. With all due respect, Joliet believes that these technical flaws could have been brought to IEMA's attention prior to the filing of IEMA's second notice with JCAR, had IEMA discussed its responses with Joliet prior to any final rule promulgation. Fortunately, as a result of JCAR's decision to issue a rule filing prohibition, Joliet now has the opportunity to address these issues with IEMA and incorporate such information in the record. Joliet is providing these questions to IEMA, prior to the hearing so that such information can be discussed at the hearing.

Accordingly, Joliet is submitting its pre-filed questions enclosed herein as Attachment A. Please note that Joliet is submitting this information prior to the hearing and providing in-person testimony from two recognized expert health physicists so that IEMA has the opportunity to ask any specific questions and engage in a meaningful dialogue to the extent that it has any issues with the information provided in the record to date. Joliet is hopeful that by providing the in-person testimony of Dr. Port and Dr. Mossman, it can prevent any potential misconstruction or misunderstanding of the information provided by Joliet's technical witnesses while also addressing any questions or clarifications that IEMA may require.

In closing, Joliet believes that the record supports a 2.0 pCi/g or higher limitation as a cost-effective alternative to what IEMA has proposed and is willing to work with IEMA and the regulated community to adopt a land application program that is effective and protective. Should IEMA have any questions prior to the hearing, please contact me at (312) 569-1444 or Roy Harsch at (312) 569-1441 or roy.harsch@dbr.com.

Very truly yours,

Yesenia Villasenor-Rdg.

Yesenia Villasenor-Rodriguez

Attachment A
Joliet's Pre-Filed Questions

ALARA decisions are made to determine if dose reductions below the limits in regulations are justified. ALARA is a risk management approach that balances cost and benefit in setting dose constraints that are below statutory limits. IEMA has stated that the proposed 0.4 pCi/gram limit in the proposed rule is ALARA, and if so, it is based on dose. The definition of ALARA in 32 IAC 310 is:

"As low as is reasonably achievable" or "ALARA" means making every reasonable effort to maintain exposures to radiation as far below the dose limits in 32 Ill. Adm. Code: Chapter II, Subchapters b and d as is practical consistent with the purpose for which the licensed or registered activity is undertaken, taking into account the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to the public health and safety and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed or registered sources of radiation in the public interest.

Question No. 1: How did IEMA take into account each of the following points from the definition of ALARA at 32 IAC 310?

a. the state of technology,
b. the economics of improvements in relation to the state of technology,
c. the economics of improvements in relation to benefits to the public health and safety,
d. other societal and socioeconomic considerations, and
e. relation to utilization of nuclear energy and licensed or registered sources of radiation in the public interest.

ALARA determinations are based upon one of two competing basic hypotheses about the relationship between dose and effect at low doses, the linear no threshold (LNT) hypothesis and a hypothesis that a threshold exists, below which low dose causes no effect, the threshold hypothesis.

The LNT hypothesis has long been the most conservative basis for ALARA decisions. This hypothesis holds that no amount of radiation is free from risk (i.e. no threshold for radiation effects exists, and the relationship between dose and effect is linear). Because the LNT hypothesis is based upon the absence of a safe dose and a linear relationship between dose and risk, a low dose to many individuals can have the same societal cost as a high dose to a single individual. The LNT hypothesis permits expressing the collective dose to a population in person-rem. To asses risk from collective dose using the LNT hypothesis, we assign a societal cost per person-rem. The same value is gained when a dose is eliminated. ALARA decisions weigh the cost of dose reduction against the societal benefit from eliminating the dose to be. The societal cost eliminated must be greater than the cost of the dose eliminating action to justify the action.

A less conservative hypothesis, in opposition to the LNT, holds that a threshold exists for low level effects and that the relationship above this threshold may or may not be linear. Because of the hypothesized threshold, below which no radiation effects exist, low doses cannot be aggregated as collective dose and risk assessment and cost-benefit analysis cannot be performed

below the threshold where no risk exists. Instead, an ALARA based dose is set for each potentially exposed individual and no action is justified below this ALARA based dose.

In its ALARA calculations, presented at the Public hearings on September 30, 2009 and April 30, 2010, Joliet used an accepted approach based upon the Linear No Threshold (LNT) hypothesis, the conservative approach usually preferred by regulatory agencies.

Joliet preformed calculations to compare the societal benefit from the reduction that would result from following the proposed rule and the cost to the affected regulated communities. Joliet used a value of a person-rem that is several times the value used in the nuclear industry. It found that the cost of the new rule would be 400 times the societal benefit even in the extreme scenario for dose reduction selected by IEMA, where houses are built on topsoil. More cost effective alternatives include using more realistic modeling of home construction which would raise the limit on concentration in soil and substantially reduce cost by not requiring disposal of material that has a beneficial value. Another less expensive alternative might be to set up a fund to pay for radon mitigation in homes, if any, built on topsoil.

In IEMA's Responses to Comments to the April 30, 2010 Public Hearing, IEMA noted that Joliet had previously cited several Position Papers published by the Health Physics Society (HPS). The Health Physics Society is a scientific organization of professionals who specialize in radiation safety. Its mission is to support its members in the practice of their profession and to promote excellence in the science and practice of radiation safety. Position Papers are written by leaders of the HPS on behalf of the Society and represent the official position of the Society. The Position Papers quoted by IEMA are based upon a hypothesis that threshold exists below which no effects will be observed.

Question No. 2: Are any staff from the Illinois Emergency Management Agency members of the Health Physics Society? Are the staff, who prepared and reviewed Responses to Comments April 13, 2010 Public Hearing, members of the Health Physics Society?

IEMA quoted, out of context, sentences and, in at least one instance, a partial sentence from the Position Papers. By quoting sentences and partial sentences out of context, IEMA obscured the basis for the Position Papers in its responses to the public comments. The Position Papers are based upon a fundamental acceptance of a threshold model in which no adverse health effects exist below a threshold, frequently stated as 5,000 mrem or 10,000 mrem. The Position Papers state that collective dose should not be used to perform risk analysis and cost-benefit modeling at low dose because the hypothesis upon which they are based is a threshold and no adverse effects are predicted at low doses.

In the following statements, IEMA attempts to exploit the Position Papers' statements that risk assessment and monetary cost should not be used in ALARA decisions at low dose, while obscuring the essential fact that this position is based on a threshold hypothesis where risk assessments and monetary cost-benefit analysis cannot be performed because no adverse health effects exist at low doses.

The out of context sentences and the context in which they appear in the Position Papers are below.

In quoting from *Risk Assessment, Health Physics Society*, IEMA excerpts sentences from context below in which the excerpted sentence does not convey the message of the document.

IEMA: • "Risk Assessment is the process of describing and characterizing the nature and magnitude of a particular risk and includes gathering, assembling and analyzing information on the risk."

The full paragraph reads: Risk Assessment is the process of describing and characterizing the nature and magnitude of a particular risk and includes gathering, assembling and analyzing information on the risk. In order to effectively manage risks and to communicate risks to the public, a clear understanding of the nature and magnitude of the risk at relevant exposure levels is necessary. The Health Physics Society has become increasingly concerned with the erratic application of risk assessment in the establishment of radiation protection regulations. These regulations are inconsistent, poorly coordinated among federal agencies, and inadequately communicated to the public. Examples of problem areas include: (1) 100 to 1000 fold discrepancies in permissible exposure levels among various regulations, all allegedly based on the same scientific risk assessment data, and (2) proposed expenditures of billions of federal and private dollars to clean up radioactively contaminated federal and commercial sites without careful consideration of the actual public health benefits to be achieved.

Question No. 3: Why did IEMA omit the balance of the paragraph discussing unnecessary expenditures?

IEMA: • "The Health Physics Society recommends that assessments of radiogenic health risks be limited to dose estimates near and above 10 rem."

The full paragraph reads: The Health Physics Society recommends that assessments of radiogenic health risks be limited to dose estimates near and above 10 rem. Accordingly, limitations in risk assessment must be fully recognized and made explicit in establishing regulations for the protection of the public health. The Health Physics Society supports risk assessments that are consistent, of high technical quality, unbiased, and based on sound, objective science.

Question No. 4: Why did IEMA omit the sentence supporting risk assessments that are consistent, of high technical quality, unbiased, and based on sound, objective science where risk is thought to exist and the information in the Position Papers supporting the absence of risk and adverse health effects below 10,000 mrem?

IEMA: • "Below this level, only dose is credible and statements of associated risks are more speculative that credible."

IEMA: • "Thus compliance with regulations to achieve very low levels of exposure result in enormous expenditures of money with no demonstrable public health benefits."

The full paragraph reads: In the absence of direct observations, estimation of radiogenic health risks at low doses must be viewed with caution. In most instances, to estimate risks (e.g., cancer) of small doses of radiation, a linear extrapolation from large doses to zero is used. Extrapolation assumes that the pathway of radiogenic effects is identical at any dose, which may not be valid. At high doses (>100rem), cell killing and cell replacement occurs creating an environment favorable for tumor growth. At low doses (<10rem), cell killing and proliferation of surviving cells (which may be mutated or otherwise damaged) is much less probable. In discussing the question of the limitations of extrapolation to estimate radiogenic risk in the millirem range, the National Academy of Sciences, in its 1990 BEIR V report noted "...the possibility that there may be no risks from exposures comparable to external natural background radiation cannot be ruled out. At such low doses and dose rates, it must be acknowledged that the lower limit of the range of uncertainty in the risk estimates extends to zero." The Health Physics Society recommends that assessments of radiogenic health risks be limited to dose estimates near and above 10 rem. Below this level, only dose is credible and statements of associated risks are more speculative than credible. Thus, compliance with regulations to achieve very low levels of exposure result in enormous expenditures of money with no demonstrable public health benefits.

Question No. 5: Why did IEMA leave out a major portion of a paragraph that concludes "Thus compliance with regulations to achieve very low levels of exposure result in enormous expenditures of money with no demonstrable public health benefits."?

Question No. 6: Can IEMA identify any instance where harmful effects result from doses below 10,000 mrem?

Ionizing Radiation-Safety Standards forth General Public is the most important Position Paper cited because it directly addresses dose to the public. The Position paper has six key points. In quoting from this standard, IEMA omitting three key points completely undermine the basis for the proposed rule.

IEMA: The Society's principal recommendations about radiation-safety standards for the public are:

1. "Justifiable sources of radiation exposures are those that result in an overall net benefit to society."

Question No. 7: How does IEMA determine that application of sludge to amend agricultural soils does not have an overall net benefit?

2. "Radiation exposures of the public from controllable sources should be maintained as low as reasonably achievable (ALARA), economic and social factors being taken into account." and "However, ALARA should not be quantified with respect to dose goals or monetary cost, e.g. dollars per person-rem."

IEMA split this point into two.

Question No. 8: How has IEMA taken economic and social factors into account?

3. "Public radiation-safety standards should be based on specific values of dose rather than hypothetical estimates of risk."

The complete point reads: Public radiation-safety standards should be based on specific values of dose rather than hypothetical estimates of risk. These standards should be expressed as an effective dose resulting from all exposure pathways.

Question No. 9: Why does IEMA leave out half of key point 3?

4. The sum of effective dose(s) to individual members of the public from exposure to controllable sources with the exception of occupational exposure, accidental releases, and indoor radon, normally should be limited to 1 mSv (100 mrem) in any year. In special (infrequent) circumstances, an effective dose up to 5 mSv (500 mrem) in a year may be permitted.

The proposed rule contains a limit for radium in soil that would result in a dose of 10 mrem from all pathways to the occupant of a house built on topsoil – a situation that has not been identified in Illinois. Seventy-five per cent of the dose is from indoor radon and only 2.5 would be from other pathways. Why does IEMA cite this Position Paper, but leave out key point 4 that excludes the dose from indoor radon?

5. Constraints should be applied to each controllable source of public exposure to ensure that the dose limit for an individual from all controllable sources combined will be met. An effective dose of 0.25 mSv (25 mrem) in any year to individual members of the public is a suitable source constraint in most cases. In special circumstances, an effective dose higher than 0.25 mSv in a year may be permitted.

Question No. 10: Why does IEMA cite this Position Paper, but leave out key point 5 which recommends a constraint of 25 mrem on a single controllable source such as indoor radon, and instead proposes a rule that effectively would limit the dose from all pathways to 10 mrem in a house built on topsoil?

Question No. 11: Why does IEMA model use a scenario where houses are built on topsoil?

Question No. 12: Can IEMA identify a jurisdiction where building on topsoil is permitted?

6. The Health Physics Society supports the establishment of an acceptable dose of radiation of 1 mSv/y (100mrem/y) above the annual natural radiation background. At this dose, risks of radiation-induced health effects are either nonexistent or too small to be observed.

Question No. 13: Why does IEMA cite this Position Paper, but leave out key point 6 which states that at doses much higher than the doses that would result from the application limit Joliet is requesting "risks of radiation-induced health effects are either nonexistent or too small to be observed."?

A reader might conclude that the following is a key point of the position paper, but it is a footnote and not from the body of the text and not complete.

IEMA: • "A controllable source is any source of radiation exposure for which reasonable actions
can be taken to limit radiation exposure without resulting in adverse effects on individuals. Examples include:"
o "Any localized areas of environmental contamination resulting from planned or accidental releases of radioactive material or disposal of radioactive material."
o "Technologically enhanced, naturally occurring radioactive material."
o "Indoor radon."

Question No. 14: Why did IEMA not identify the quoted material as a footnote and why was it not complete?

Radiation Risk in Perspective, HPS, August 2004

IEMA: "The society has concluded that estimates of risk should be limited to individuals receiving a dose of 5 rem in one year or a lifetime dose of 10 rem in addition to natural background."

The sentence actually reads, "In view of the above, the Society has concluded that estimates of risk should be limited to individuals receiving a dose of 5 rem (5,000 mrem) in one year or a lifetime dose of 10 rem (10,000) in addition to natural background."
The referred to preceding paragraph reads, **Radiogenic Health Effects Have Not Been Consistently Demonstrated Below 10 Rem** Radiogenic health effects (primarily cancer) have been demonstrated in humans through epidemiological studies only at doses exceeding 5–10 rem delivered at high dose rates. Below this dose, estimation of adverse health effect remains speculative. Risk estimates that are used to predict health effects in exposed individuals or populations are based on epidemiological studies of well-defined populations (for example, the Japanese survivors of the atomic bombings in 1945 and medical patients) exposed to relatively high doses delivered at high dose rates. Epidemiological studies have not demonstrated adverse health effects in individuals exposed to small doses (less than 10 rem) delivered in a period of many years."
Question No. 15: Why did IEMA take a portion of a sentence out of context so as to imply a completely different meaning from what is intended in the position paper?

IEMA: "Below these doses, risk estimates should not be used."

This is an excerpt from the same paragraph. Why did IEMA take a sentence out of context so as to imply a completely different meaning from what is intended in the position paper?

The paragraph actually reads: In view of the above, the Society has concluded that estimates of risk should be limited to individuals receiving a dose of 5 rem in one year or a lifetime dose of 10 rem in addition to natural background. In making risk estimates, specific organ doses and age-adjusted and gender adjusted organ risk factors should be used. Below these doses, risk estimates should not be used. Expressions of risk should only be qualitative, that is, a range based on the uncertainties in estimating risk (NCRP 1997) emphasizing the inability to detect any increased health detriment (that is, zero health effects is a probable outcome).

Question No. 16: Why did IEMA not include the portion of the paragraph that states that zero health effect is the probable outcome from doses orders of magnitude greater than could possibly result from the application of sludge to agricultural land?

IEMA: "The possibility that health effects might occur at small doses should not be entirely discounted."

Limiting the use of quantitative risk assessment, as described above, has the following implications for radiation protection:
(a) "The possibility that health effects might occur at small doses should not be entirely discounted." The Health Physics Society also recognizes the practical advantages of the linear, no-threshold hypothesis to the practice of radiation protection. Nonetheless, risk assessment at low doses should focus on establishing a range of health outcomes in the dose range of interest and acknowledge the possibility of zero health effects. These assessments can be used to inform decision making with respect to cleanup of sites contaminated with radioactive material, disposition of slightly radioactive material, transport of radioactive material, etc.
(b) Collective dose (the sum of individual doses in a defined exposed population expressed as person-rem) has been a useful index for quantifying dose in large populations and in comparing the magnitude of exposures from different radiation sources. However, collective dose may aggregate information excessively, for example, a large dose to a small number of people is not equivalent to a small dose to many people, even if the collective doses are the same. Thus, for populations in which almost all individuals are estimated to receive a lifetime dose of less than 10 rem above background, collective dose is a highly speculative and uncertain measure of risk and should not be used for the purpose of estimating population health risks.

IEMA appears to use a position supporting use of the LNT to attack Joliet's use of cost-benefit analysis based upon the LNT.

IEMA: As can be seen from the quotes above, the HPS doesn't advise a risk assessment for doses below 5 rem in a year. However, the Agency did not conduct a risk assessment. It used RESRAD to calculate a dose. No attempt was made to calculate risk. It is clear though that the HPS states that ALARA should not be quantified with respect to dose goals or monetary cost.

Question No. 17: Why did IEMA select a target dose of 10 mrem/y resulting from land application of sludge rather than use the 25 mrem constraint limit in the Position Paper IEMA cites.

IEMA does use RESRAD to calculate a dose, or rather uses to calculate the concentration of radium in soil that would result in a target dose to occupants of a home built in non-compliance with all known building codes. IEMA quoted from the Position Paper in rebutting Joliet's use of LNT based ALARA calculations in favor of the less conservative approach based upon the threshold hypothesis usually favored by industry. In the above statements, IEMA attempts to exploit the Position Papers' statements that risk assessment and monetary cost should not be used in ALARA decisions at low dose, while obscuring the essential fact that this position is based on a threshold hypothesis where risk assessments and monetary cost-benefit analysis cannot be performed because no adverse health effects exist at low doses.

In a February 21, 2010, memo to Andrew Velasquez, Gary McCandless told the director that "Any attempt by the Agency to adopt a dose-based standard would make the Agency inconsistent with the federal agencies involved in regulating materials."

On April 13, 2010, Mike Klebe told the public that "The technical basis for the 0.4 picocurie per gram increase was the establishment of two dose limits. One is a dose limit of 10 millirem per year including radon. The other dose limit was 2-1/2 millirem per year not including radon. The 2-1/2 millirem per year was derived from NRC's few millirem as it relates to release of radioactive material."

Question No. 18: These statements appear to be contradictory statements. What is IEMA's explanation for this discrepancy between what was communicated to the IEMA director and the public?

Michels, Louise

From: Steve Vella [vellas@foxlake.org]
Sent: Tuesday, October 26, 2010 11:48 AM
To: Michels, Louise
Cc: Nancy Schuerr; Michael Stoffer; linda woodie; dduffield@rogina.com
Subject: October 26,2010 Licensing of Radioactive Material Hearing Comments
Attachments: 20101026 Hearing Comments.pdf

Ms. Michels

Please see the attached file containing a letter with comments on Proposed Rules Regarding Licensing of Radioactive Material, submitted in accordance with the notices of public hearing on October 27, 2010. A paper copy of this letter is being mailed to your office.

Steven C.Vella, Supervisor
NWRWRF
Village of Fox Lake
P 847.587.3694
F 847.587.8406
vellas@foxlake.org

VILLAGE OF FOX LAKE
NORTHWEST REGIONAL
NWR WRF
WATER RECLAMATION FACILITY

October 26, 2010

Ms. Louise Michels
IEMA
1035 Outer Park Drive
Springfield, Illinois 62704

Re: October 27, 2010 Public Hearing Comments

Dear Ms. Michels:

In response to the public hearing on proposed rules regarding IEMA's rulemaking titled Licensing of Radioactive Material (32 Ill. Admin. Code 330; 33 Ill. Reg. 12061) the Village of Fox Lake, NWRWRF offers the following comments as to the economic impact of complying with the proposed rule.

The Northwest Regional Water Reclamation facility (NWRWRF) is a 9.0 mgd regional wastewater facility serving approximately 80,000 customers in the northwest portion of Lake County. Since it's inception through multi-jurisdictional agreements in 1977 the facility has land-applied sludge as a safe, economical means of sludge disposal that benefits our users and farmers alike.

In 2007 a new limit of 0.4-pCi/l background increase of Radium 226 & 228 was imposed on our sludge permit. Since the establishment of the new limit to present the trend of the total radium has been increasing. As development in the area increased, a greater demand on deep wells has caused a 48.2% increase of total radium concentration in the sludge from 2.87 pCi/l in February 2007 to 5.54 pCi/l in July 2010. The attached spreadsheets illustrates the site life (number of applications) based on dry tons (DT) applied per acre at different ranges of total radium pico-curies/gram. Currently land application at the limit of 0.4 pCi/l and a sludge application rate of 5 DT/acre the site life is limited to 31 applications. If the limit were increased to 0.8 pCi/l at the same application rate, the field site life would increase to 63 applications.

Due to the economic impact on the community to landfill versus land filling, the Village of Fox Lake, NWRWRF request consideration be given to a more realistic manageable limit such as 0.8 pCi/l be considered. Applying the sludge thinner than current practice will increase the demand for more fields. Situated in an urban area limits the available fields that are practical to land apply sludge on. The cost to land apply sludge using 2009 generation amount is:

$$8{,}078\ yd^3 \times \$12.32/\ yd^3 = \$99{,}521 \text{ per year}$$

Comparatively, the costs to land fill the same quantity of sludge, as land applied in 2009 would cost:

Veolia

$$8078\ yd^3/yr\ /20yd^3/load = 404 \text{ loads / yr}$$

$$404 \text{ loads/yr} \times \$350/load = \$141{,}365/yr \text{ tipping fee}$$

Veolia cont.

8,078 yd^3 x 1,750lbs/ yd^3/2000lbs/ton x $40/ton = $282,730/yr hauling

$141,365 tipping fee + $282,730 hauling fee = $424,095/yr

Independent Hauler

8078 yd^3/yr x 1750 lbs/ yd^3 / 2000lbs x $56/ton = $395,822/yr

Average cost to landfill

$424,095/yr + $395,822/yr = $819,917 /yr

$819,917 / 2 = $409,958/ yr average

The cost to land fill sludge is more than four times the cost to land apply. The cost per capita to land apply is $1.24 per year as compared to land filling being $5.12 per year

The argument has been made of naturally occurring exposure to radioactivity in daily life being at levels below the allowed levels to land apply sludge in fact, the drinking water standard of 5 pCi/l is higher. Dose modeling, RESRAD has determined that a 1 pCi/g increase in soil ≈ 25 mrem/yr and 0.4 pCi/g ≈ 10 mrem/yr. Comparatively to real life exposure spending 1 month per year in Denver or flying 20hrs/yr at 30,000 feet = 15 mrem/yr. In addition to the above facts home construction on fields where sludge once was applied would have the topsoil's removed prior to construction removing threat of radon emission through concrete slabs.

The Village of Fox Lake, NWRWRF is certainly concerned with protecting the environment and human health. However economics should be considered as well as health to establish limits As Low As Reasonably Acceptable (ALARA).

Thank you in advance for IEMA's consideration of the comments presented above in making an objective decision on this rulemaking. Should you have any questions or comments please, do not hesitate to contact me.

Sincerely,

The Village of Fox Lake
NWRWRF

Steven C. Vella
Supervisor

Enclosures

Land Application/Acre
Village of Fox Lake NWRWRF

Dry Tons Applied per acre	Lbs per dry ton	Lbs. Applied	grams per lbs	grams sludge applied	Unit weight soil lbs per cu ft	cu ft/acre 1 ft deep	lbs soil/ acre	grams per lbs	grams soil per acre	total grams	pico-curies per gram in sludge	pico-curies applied	increase in background, pico-curies/gram	Cumulative increase from permit, pico-curies per gram increase in background	Site life number of applications
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	5	9,072,000	0.0051	0.4	78.49
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	5	9,072,000	0.0051	0.6	117.73
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	5	9,072,000	0.0051	0.8	156.98
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	5	9,072,000	0.0051	1	196.22
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	25	45,360,000	0.0255	0.4	15.70
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	25	45,360,000	0.0255	0.6	23.55
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	25	45,360,000	0.0255	0.8	31.40
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	25	45,360,000	0.0255	1	39.24
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	50	90,720,000	0.0510	0.4	7.85
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	50	90,720,000	0.0510	0.6	11.77
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	50	90,720,000	0.0510	0.8	15.70
2	2,000	4,000	453.60	1,814,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,780,107,840	50	90,720,000	0.0510	1	19.62

Land Application/Acre
Village of Fox Lake NWRWRF

5 tons per acre	Lbs per dry ton	Lbs. Applied	grams per lbs	grams sludge applied	Unit weight soil lbs per cu ft	cu ft/acre 1 ft deep	lbs soil/ acre	grams per lbs	grams soil per acre	total grams	pico-curies per gram in sludge	pico-curies applied	increase in background, pico-curies/gram	Cumulative increase from permit, pico-curies per gram increase in background	Site life number of applications
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	5	22,680,000	0.0127	0.4	31.44
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	5	22,680,000	0.0127	0.6	47.16
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	5	22,680,000	0.0127	0.8	62.89
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	5	22,680,000	0.0127	1	78.61
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	25	113,400,000	0.0636	0.4	6.29
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	25	113,400,000	0.0636	0.6	9.43
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	25	113,400,000	0.0636	0.8	12.58
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	25	113,400,000	0.0636	1	15.72
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	50	226,800,000	0.1272	0.4	3.14
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	50	226,800,000	0.1272	0.6	4.72
5	2,000	10,000	453.60	4,536,000	90.00	43,560	3,920,400	453.60	1,778,293,440	1,782,829,440	50	226,800,000	0.1272	0.8	6.29

Land Applications/Acre
Village of Fox Lake NWRWRF

Dry Tons Applied per acre	Lbs per dry ton	Lbs. Applied	grams per lbs	grams sludge applied	Unit weight soil lbs per cu ft	cu ft/acre 1 ft deep	lbs soil/ acre	grams per lbs	grams soil per acre	total grams	pico-curies per gram in sludge	pico-curies applied	increase in background, pico-curies/gram	Cumulative increase from permit, pico-curies per gram increase in background	Site life number of applications
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	5	31,752,000	0.0178	0.4	22.48
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	5	31,752,000	0.0178	0.6	33.72
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	5	31,752,000	0.0178	0.8	44.96
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	5	31,752,000	0.0178	1	56.21
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	25	158,760,000	0.0890	0.4	4.50
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	25	158,760,000	0.0890	0.6	6.74
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	25	158,760,000	0.0890	0.8	8.99
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	25	158,760,000	0.0890	1	11.24
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	50	317,520,000	0.1779	0.4	2.25
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	50	317,520,000	0.1779	0.6	3.37
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	50	317,520,000	0.1779	0.8	4.50
7	2,000	14,000	453.60	6,350,400	90.00	43,560	3,920,400	453.60	1,778,293,440	1,784,643,840	50	317,520,000	0.1779	1	5.62

Michels, Louise

From: Duane Bollig [dbollig@wrtnet.com]
Sent: Tuesday, October 26, 2010 6:21 PM
To: Michels, Louise
Subject: WRT Comments to Rulemaking
Importance: High
Attachments: 2010-1026_WRT Comment to 330.40 Rulemaking.pdf

Dear Louise –
Please call me if you have any questions.

Best regards,

Duane Bollig
VP - Business Development & Govt Affairs
Water Remediation Technology LLC (WRT)
9500 West 49th Avenue | Suite D100 | Wheat Ridge CO 80033
phone 303.424.5355 ext. 108 | cell 303.204.4256 | dbollig@wrtnet.com

Water Remediation Technology LLC

October 26, 2010

Ms. Louise Michels, Esq.
Staff Attorney
Illinois Emergency Management Agency (IEMA)
1035 Outer Park Drive
Springfield IL 62704

Re: Comments to Proposed Rulemaking, Licensing of Radioactive Material, 32 Ill. Adm. Code 330.40

Dear Ms. Michels:

Water Remediation Technology LLC (WRT) appreciates the opportunity to submit the following comments to the proposed rulemaking to 32 Ill. Adm. Code §330.40, *License Exemption – Radioactive Materials Other Than Source Material*, specifically comments to §330.40(d), *Exempt Material*, related to the land application of residuals or sludge resulting from the treatment of water and sewage containing naturally occurring radium.

1. WRT supports IEMA's effort to codify the understandings and requirements of the Memorandum of Agreement (MOA), circa December 1984, between the then Illinois Department of Nuclear Safety and the Illinois Environmental Protection Agency regarding land application of radioactive water and wastewater treatment residuals and sludge.

2. §330.40(d)(1) through (3) – These three subsections refer to a material activity-concentration threshold of simply 200 pCi/gram for total radium, a threshold that if equal to or less than, licensure is not required. WRT requests the IEMA edit and correct this threshold activity concentration in the subsections reference above to read 200 pCi/gram (dry weight). All of the activity concentrations presented in §330.40(d)(4), the subsection that presents the various land application alternatives (soil conditioning, landfill disposal with conditions, disposal with case-by-case IEMA review, etc.) have activity-concentration limits that are presented on a dry-weight basis. §330.40(d)(4)(C) of the proposed rulemaking presents an upper-limit activity concentration of 200 pCi/gram, and this time, a dry-weight basis is specified. Additionally, the 1984 MOA that this current rulemaking is replacing presents its activity-concentrations limits on a dry-weight basis. Accordingly, WRT assumes that IEMA meant for the activity concentration used as the licensure threshold in §330.40(d) (1) through (3) to also be on a dry-weight basis.

3. Regarding JCAR's objection that the proposed rulemaking causes a significant adverse economic impact on the affected public and the opportunity for interested persons to present data on more-economic alternatives, WRT offers the following information. If the proposed rulemaking is deemed to cause a significant adverse economic impact, WRT would like to point out that there currently are 21 WRT Radium Removal Systems that are economically operating at a number of community water systems in Illinois, systems with well flow rates

9500 West 49th Avenue, Suite D100, Wheat Ridge, Colorado 80033 · tel 303.424.5355 · fax 303.425.7497
email: info@wrtnet.com · web: www.wrtnet.com

that range from as little as approximately 20 gpm to 1,200 gpm. The radioactive treatment residuals resulting from these systems are not disposed of in the local Illinois environment, but rather are disposed of at an appropriately-licensed NORM disposal facility out of state. There are alternatives that can economically remove the radium from the drinking water that do not result in creating a radioactive wastewater treatment sludge.

Once again, thank you for the opportunity to comment on this rulemaking effort. Please feel free to call me at 303.424.5355 ext. 108, if you have any questions related to WRT's comments.

Respectfully submitted,

Duane W. Bollig
Vice President – Business Development &
Government Affairs

cc: Mike Dimitriou
Charlie Williams
file IL 1.20

Michels, Louise

From: Harrison, Jenny [JHarrison@ilfb.org]
Sent: Wednesday, October 27, 2010 9:04 AM
To: Michels, Louise
Cc: Erickson, Nancy
Subject: Comments on rulemaking on Licensing of Radioactive Material
Attachments: RadiumComments1010.doc

Attached are comments from Illinois Farm Bureau, on rulemaking on Licensing of Radioactive Material (32Ill. Adm. Code 330; Ill. Reg. 12061)

October 26, 2010

Louise Michels
IEMA
1035 Outer Park Drive
Springfield, IL 62704

RE: Comments on rulemaking on Licensing of Radioactive Material
(32 Ill. Adm. Code 330; Ill. Reg. 12061)

Dear Ms. Michels:

Please accept these comments from Illinois Farm Bureau regarding the proposed rulemaking on Licensing of Radioactive Material (32 Ill. Adm. Code 330; Ill. Reg. 12061) that would revise standards for sewage treatment sludge containing radium.

Illinois Farm Bureau is a voluntary, grassroots organization whose members include about three-fourths of the farmers in the state of Illinois. We believe that decisions on government policies and standards should be based on sound scientific research. We rely on the scientific community for good, unbiased research to provide the answers to environmental questions.

Illinois Farm Bureau does not have the technical expertise to determine whether the proposed radium standard increase is scientifically safe or not. We leave that to the scientists to ask what a safe level for radium in sludge should be and then to delineate the risk involved in the proposed standard.

The Illinois Emergency Management Agency's (IEMA) proposal would increase the radium concentrations in sludge over the background concentrations in soil by 0.4 pci/g. The notice for the hearing stated that the rules were being studied further because the Joint Committee on Administrative Rules (JCAR) voted to object to the proposed rules and prohibit their filing. The notice for the hearing stated that JCAR objected because the proposal causes a significant adverse economic impact on the affected public. IEMA is holding the hearing to further allow comments on the basis and extent of the economic impacts of complying with the proposed rules and alternative proposals for protecting public health and safety and future liability for property owners.

Our concerns with the proposal focus on that last issue and the possible impact to landowners on whose property the sludge is applied. We have several questions with the proposal. Does the economic analysis include what levels of radium that sludge can contain, and still be considered protective of the health of the soils onto which the sludge is applied? If the application of sludge contaminates the fields used to grow crops, what

is the economic loss to the landowner? If the application contains more radium than is safe for the field to accept, how long would it be before the farmer would be able to grow a crop on that same field again? What is the future liability for the landowner? Is the state going to research what a safe application level for Illinois soils would be? These questions should be answered and used to determine whether any proposed rule should move forward.

Another issue we want to raise is what happens to future use of those fields that have had sludge applied? In urbanizing and growth areas of the state, some fields may be taken out of production and used for other purposes. Will the sludge application limit the opportunity of a landowner to change future use of his or her property?

We understand that this is a very complicated issue and were surprised that the comment period ends after the public meeting on October 27. This seems to be insufficient time for public involvement and we recommend that the agency consider extending the comment period to allow for further input.

The outcome of this issue must be based on scientific reality. The rule change should address concerns regarding possible effects on human and soil health, plus economic impacts, including property values.

This proposal is very complex and we commend the agency and JCAR for their diligence in analyzing the issue.

Sincerely,

Nancy Erickson, Director
Natural and Environmental Resources

Michels, Louise

From: Ed Dolezal [edolezal@channahon.org]
Sent: Wednesday, October 27, 2010 1:33 PM
To: Michels, Louise
Subject: Public Hearing Comments
Attachments: TestimonyatJCAR2.docx.pdf

Louise-

Attached is the transcript of my verbal comments given today.
--
Edward S. Dolezal, P.E.
Director of Public Works
Village of Channahon

Testimony of Ed Dolezal on 10/27/10
For
Proposed Rulemaking Licensing of Radioactive Material
32 Ill. Adm. Code 330.40

My name is Ed Dolezal. I have been the Village of Channahon's Public Works Director for about 12 years. The Village has given general comments on the proposed rulemaking at two previous public hearings. I intended to provide testimony on this proposed rulemaking in accordance with the Notice of Public Hearings, but have been unable to develop the specific financial information requested.

Specifically, the economics of compliance have been particularly difficult to determine. In Channahon's case, based on recent sludge analysis, the proposed rulemaking dictates that IEMA be consulted and approve the disposal method. Since I do not believe that enough data, i.e., sludge analysis for radium, exists to determine a narrow enough range of its concentration in our sludge so that a consistent method of disposal can be approved, no cost can be determined. In other words every analysis prior to us hauling off sludge from the WWTP could result in a new disposal method or location and therefore different costs.

Developing costs for landfilling when land application is not approved has proven difficult because I don't believe that simply using typical tipping fees at municipal landfills is appropriate. The problem being that even if IEMA approves of landfilling, no landfill is required to take the sludge. Presumably private landfills can reject any load they want. This would leave no option. What cost can be attributed to no available disposal method? Our research into low level radioactive landfills has led nowhere so I can't comment on costs.

While Channahon has not hired experts to analyse health effects of radon exposure, others have, and that information seems to indicate that applying sludge to farm fields at levels greater than allowed in the proposed rulemaking is a safe and cost effective method of disposal consistent with accepted standards for radioactive contaminants.

Channahon does still support the exemption from licensing included in the proposed rulemaking.

Thank you for this opportunity to comment.

Michels, Louise

From: Eric Lecuyer [elecuyer@crystallake.org]
Sent: Wednesday, October 27, 2010 4:10 PM
To: Michels, Louise
Cc: Jim Huchel
Subject: Testimony on IEMA proposed rulemaking hearing 10.27.10
Attachments: Eric Lecuyer Testimony via email10.27.10.doc

Louise Michels, IEMA

Please accept the attached written testimony for the record as part of the public hearing held today on IEMA's proposed rulemaking, Licensing of Radioactive Materials, 33 Ill. Reg. 12061

<<Eric Lecuyer Testimony via email10.27.10.doc>>

Eric R. Lecuyer
Director of Public Works
City of Crystal Lake
100 W. Municipal Complex
Crystal Lake, IL 60039-0597
elecuyer@crystallake.org
815-356-3613
fax 815-356-3797

Written Testimony submitted via email for the record, IEMA Proposed Rulemaking Public Hearing, Licensing of Radioactive Materials, 33 Ill. Reg. 12061. Wednesday, October 27, 2010

My name is Eric Lecuyer and I am the Director of Public Works for the City of Crystal Lake. I provided testimony at the prior public hearing, held on September 30, 2009 in Springfield, Illinois. The written testimony provided now is intended to offer some cost refinements to that earlier testimony.

A majority of our drinking water comes from deep sandstone wells and while the concentration of radium is well below the Safe Drinking Water Act MCL, radium is removed from the drinking water during our softening and barium removal processes. Ultimately, the radium removed from our drinking water ends up concentrated in the digested sludge produced through aerobic and anaerobic digestion at our two wastewater treatment plants. In the time since the last hearing, we have evaluated treatment technologies for removal at the source, which would require the installation of a WRT system at each water treatment plant fed by a deep well, with a total of three needed. The lease cost for the three units was estimated to be in the range of $750,000.00 to $1,000,000.00 per year, a cost that would increase our drinking water production costs by one third, from approximately $3,000,000.00 per year to $4,000,000.00 per year. The cost to our residents would need to be increased by the same proportion and rate increases of this magnitude are not palatable in any economy, but especially impossible to levy during our current deep recession.

Based on the expectation of continuing to produce dewatered, digested sludge in volumes of 1,000 or so dry tons per year, with an expected radium level of 35-40 pCi/gram and with the pending licensing requirements and potential limit of 0.4 pCi/gram, the City of Crystal Lake has been forced to change our final disposal options of beneficial use through land application to land filling. Our costs to manage what had been a beneficial byproduct of wastewater treatment to a landfill capacity volume demand, will increase by more than fifty percent, from approximately $85,000 per year to $125,000 per year. While this cost increase represents no where nearly as significant of an increase for wastewater treatment, the additional 2% increase in the overall cost for wastewater treatment will needed to be factored in to already needed rate increases for operation, maintenance and replacement costs.

I am aware of other testimony provided by respected experts in the field of physics and public health and the conclusions that have been reached that a higher limit would also be protective of public health. I again urge the agency to employ sound science, seek to be protective of public health on a basis of realistic exposures while not significantly increasing the economic burden on City's and our residents.

Eric Lecuyer Testimony, IEMA Proposed Rule Making Licensing of Radioactive Material and Land Application of Sludge. September 30, 2009, Springfield, Illinois

My name is Eric Lecuyer and I am the Director of Public Works for the City of Crystal Lake. The City of Crystal Lake depends on deep sandstone wells for more than one half of our daily water

supply needs. Those wells contain naturally occurring barium and very low concentrations of radium, well below the Safe Drinking Water Standards for radium. Barium concentrations in raw well water vastly exceed Safe Drinking Water Standards, and are removed with ion exchange softening with the residuals discharged to our two wastewater treatment plants. Of the low concentration of radium in the raw well water, some passes through the ion exchange system, but most is removed and assimilates with the backwash residuals. Based on our experience, even low concentrations of radium can become concentrated in the wastewater facilities as effective biological processes remove the volatile components of primary and secondary treatment plant sludges. As a result, sludge prepared for beneficial reuse via land application contains higher than background concentrations of radium. This is not a new phenomenon; sludge has contained small concentrations of radium for as long as the City of Crystal Lake has been operating deep sandstone wells, softening water for barium removal and aesthetic reasons, and discharging residuals to the wastewater system. Our Well #2 was constructed to a depth of 2,000 feet, a deep sandstone well with low concentrations of radium present in 1930 and that facility remained in use until 1974.

With the recent inclusion of maximum pico-curies per gram increases above background in our NPDES permits for the land application of sludge, we have been very limited on the use of land application sites. Even with relatively low concentrations of radium in our sludge, we have been limited to a single application at each site, ever. While we are encouraged that current proposed rulemaking may provide some slight improvement, the proposed values will still ultimately restrict our ability to land apply sludge, and will ultimately result in this material going from a beneficial resource as a soil amendment, to waste that can only be disposed of in select landfills.

We are uncertain of what landfills may be able to accept dewatered sludge that can no longer be land applied due to radium levels above the threshold. If the nearest landfill to Crystal Lake that can accept special waste can accept our sludge, our cost for transporting and tipping fees would more than double the annual cost for this function. We estimate that if we are required to transport and dispose of the material at an ENORM landfill, our costs would more than triple

to over $250,000 per year. This cost would result in a direct rate increase to our residents. Rate increases are never popular, even more so in the current economy.

The City of Crystal Lake has previous experience in disposing of NORM material from a decommissioned water plant softening system, from Well #2, constructed in 1930. As a result of the demolition process, material that had accumulated in the backwash piping system for the softener plant associated with this well ended up on the topsoil on the site. I will spare you the details, but suffice to say that it was very difficult to find an ultimate disposal site, and cost over $24,000 in 2003 to dispose of forty-nine 55 gallon barrels of soil contaminated with radium that exceeded background concentrations. I would hate to have to extrapolate that cost of $24,000 for what would be far less than one semi load of material to the cost of disposal of nearly 200 semi-loads of dewatered sludge per year.

The cost of replacing our source water, with the abandonment of our five highly productive deep sandstone wells in favor of non-radium containing water sources is estimated to be $50,000,000, and is completely out of the question.

Based on the information I have been able to review in the short time since the notice was received regarding this proposed rulemaking, it is clear to me that any standard that is adopted will be in place for many years. This will directly create a significantly increased cost burden for our residents with little potential benefit with regard to reducing the public's exposure to radium or radon. I would urge IEMA to follow the lead of Wisconsin in adopting a limit of 1640 milli-curies per acre in the top 12 inches of soil. With this calculated limitation in place, the land application of sludge would remain a viable and this material would be beneficial for use without increasing the risk to potential future dwellings on current application sites, based on proper construction techniques.

At a minimum, I would ask that the process be slowed and that all parties can be assured that sound science has been employed with the result being appropriate protections for the public without undue costs to our residents in Crystal Lake, and other communities across the state.

Michels, Louise

From: Eggen, James E [jeggen@jolietcity.org]
Sent: Wednesday, October 27, 2010 5:00 PM
To: Michels, Louise
Cc: 'Villasenor-Rodriguez, Yesenia'
Subject: Additional Public Hearing Comments

Dear Ms. Michels:

On behalf of the City of Joliet, I would like to make the two additional comments for the record:

1. Joliet objects to the continued reference to the two historic cases where the release of radioactive materials were not controlled and ultimately resulted in high exposure to the general public, namely, the Elgin Watch Company and Kerr-McGee cases. These cases occurred during the early years of the industry and current knowledge will prevent this type of occurrence. Continued reference to these cases leads the general public to believe we are no smarter than our predecessors.

2. The current standard is based on mixing with the top 12" of topsoil on a field. If site conditions allow, mixing to a greater depth (18" or deeper) will reduce the onsite concentration. Considerations should be made for the possibility of lower site concentrations.

Thank You,

James E. Eggen, P.E.
Director of Public Utilities
City of Joliet
Ph: 815-724-4230

Michels, Louise

From: Villasenor-Rodriguez, Yesenia [Yesenia.Villasenor@dbr.com]
Sent: Wednesday, October 27, 2010 7:35 PM
To: Michels, Louise
Subject: Fw: Delivery Status Notification (Delay)

Attachments: ATT196371.txt; Re: Comments


ATT196371.txt (519 B) Re: Comments

Louise please see my message below

----- Original Message -----
From: postmaster@dbr.com [mailto:postmaster@dbr.com]
Sent: Wednesday, October 27, 2010 05:46 PM
To: Villasenor-Rodriguez, Yesenia
Subject: Delivery Status Notification (Delay)

This is an automatically generated Delivery Status Notification.

THIS IS A WARNING MESSAGE ONLY.

YOU DO NOT NEED TO RESEND YOUR MESSAGE.

Delivery to the following recipients has been delayed.

louise.michels@illinois.org

Michels, Louise

From: Villasenor-Rodriguez, Yesenia [Yesenia.Villasenor@dbr.com]
Sent: Wednesday, October 27, 2010 3:42 PM
To: louise.michels@illinois.org
Subject: Re: Comments

Louise:
I'm having trouble with my blackberry. So my email starts below and this is point 2.

2. Mr. McCandles went on the record and reiterated some of the information that IEMA has previously stated. Specifically, the comments that IEMA is providing an exemption that is 300 percent increase is a disingenous statement for two reasons. First, iema has conceded that the .1 was found to be invalid pursuant to the pcb decision involving joliet. Hence, this rule is not an increase because there was never an enforceable rule. Second, to date there is absolutely no information in the record to show how the .1 limitation was derived. Thus, IEMA is misguiding the public and the Joint Committee on administrative rules when it makes these statements.

3. Why did IEMA reference a 2.5 mrem constraint limit resulting from .4 pCi/g when the source constraint in the NRC's radiological criteria for licensee termination final rule found in 10 CFR part 20 and 63? .

----- Original Message -----
From: Villasenor-Rodriguez, Yesenia
Sent: Wednesday, October 27, 2010 04:18 PM
To: Villasenor-Rodriguez, Yesenia
Subject: Comments

Ms. Michels I am submitting the following comments in response to today's public hearing since IEMA did not allow any witnesses to provide additional testimony despite the fact that there remained time before the hearing was scheduled to officially close

First, Joliet objects to the fact that IEMA did not allow witnesses including Mr. Port and myself to ask questions after the last registered attendant/commentor spoke. The last public commentor spoke at about 2:45 and therefore there was over an hour remaining before the public hearing was scheduled to end. This decision appears to be rather arbitrary and the message being sent to joliet is that IEMA doesn't want to engage in the discussions with Joliet.

2. Mr. Mccandles came on the record and